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REMARKS

Claims 1 through 17 and new Claims 18 and 19 are pending in the application.

Claim 1 has been amended to provide product limitations that reflect the advantageous incorporation of the flame retardant as a predried and/or precrystallized masterbatch. In particular, Claim 1 has been amended to recite that the films of the invention beneficially include predried and/or precrystallized masterbatch carrier polymer. Support for this amendment can be found in the Application-as-filed, for example on Page 8, fifth full paragraph in its entirety and Page 9, second full paragraph, first sentence.

Claims 18 and 19 have been added to complete the record for examination and highlight advantageous embodiments of the invention.

Claim 18 is directed to particularly advantageous films of the invention having a thickness of 5 to 300 micron that incorporate from 0.5 to 30 % flame retardant and that further comply with the requirements for the construction materials classes B2 and B1 to DIN 4102. Support for Claim 18 can be found in the Application-as-filed, for example on Page 5, second full paragraph, first sentence and Page 8, third full paragraph in its entirety.

Claim 19 is directed to particularly beneficial films of the invention formed from polyester that consists essentially of polyethylene terephthalate. Support for Claim 19 can be found in the Application-as-filed, for example on Page 4, second full paragraph in its entirety.

Reexamination and reconsideration of this application, withdrawal of all rejections, and formal notification of the allowability of the pending claims are earnestly solicited in light of the remarks which follow.

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The Claimed Invention is Patentable in Light of the Art of Record

Claims 1 through 4, 6 through 12, and 14 through 17 stand rejected over United States Patent No. 5,955,181 to Peiffer et al. (US 181) in view of United States Patent No. 5,936,048 to Oishi et al. (US 048) and United States Patent No. 5,804,626 to Rogers et al. (US 626). Claims 5 and 13 stand rejected over the foregoing primary and secondary references and further in view of DE 19630599 to Murschall (DE 599).

It may be useful to consider the claimed invention before addressing the merits of the rejection. The claimed invention is directed to transparent, biaxially oriented polyester films that include at least one flame retardant which is soluble in the polyester. The flame retardant is incorporated into the films as a predried and/or precrystallized masterbatch. The film thus further includes predried and/or precrystallized masterbatch carrier polymer. Quite unexpectedly, the transparent polyester films of the invention do not embrittle when exposed to temperatures of 100°C for 100 hours.

In further beneficial aspects, the films of the invention include flame retardant in an amount ranging from 0.5 to 30% by weight and have a thickness ranging from 5 to 300 microns. In such beneficial aspects, the films comply with the requirements for construction material classes B2 and B1 to DIN 4102, as recited in Claim 18.

Conventional flame retardant films are known to cake during production, as noted in the Application-as-filed on Page 2, fifth paragraph, and Page 4, first partial paragraph, second full sentence. Conventional flame retardant polyester films were further known to embrittle after as little as 48 hours, as further noted in the Application-as-filed on Page 2, fifth paragraph.

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Quite unexpectedly, Applicants determined that that low-flammability film can be produced without caking in the dryer. More specifically, non-caking low-flammability films can be produced using a predried and/or precrystallized flame retardant masterbatch composition. Furthermore, measurements showed that the claimed films do not become brittle over a long period at high temperatures of 100 C, which is altogether surprising for flame retardant polyester films. Applicants submit that this lack of embrittlement is most probably attributable to synergy relating to the recited predrying and/or precrystallization. The Examiner's attention is kindly directed to the Application-as-filed on Page 10, second full paragraph and Page 7, fifth through last paragraphs, in their entirety.

The cited references do not teach or suggest the claimed invention.

US 181 is directed to heat sealable films incorporating ethylene 2,6-naphthalate ("EN") into the heat sealable layer. (Col. 3, lines 45 – 50 and Col. 5, lines 11 - 13). The EN within the heat sealable layer reduces or avoids the tendency of conventional heat-sealable polyester films to stick during production and further processing. (Col. 3, lines 29 – 32). US 181 generically notes that any of the film layers may further contain "conventional additives," such as "stabilizers" and antiblocking agents. (Col. 6, lines 52 – 54).

US 181 does not teach or suggest flame retardant films. Consequently, US 181 does not teach or suggest the recited masterbatched flame retardant incorporated within predried and/or precrystallized masterbatch carrier polymer.

And US 181 most certainly does not teach or suggest such films including flame retardant in an amount ranging from 0.5 to 30% by weight, in which the film has a thickness ranging from 5 to 300 microns and complies with the requirements for construction material classes B2 and B1 to DIN 4102, as recited in Claim 18.

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Nor does US 181 teach or suggest such film formed from polyester that consists essentially of polyethylene terephthalate, as recited in Claim 19. In fact, US 181 teaches away from such embodiments by requiring the presence of EN-based polyester within the sealable layer.

US 048 is merely directed to norbornenyl-modified resins, including rubbers waxes and oils. (Col. 7, line 60 – Col. 9, line 65 and Col. 1, lines 11 - 12). The norbornenyl group may be bonded to resin in amounts of up to 60 wt %. (Col. 15, lines 48 – 51). Although providing a laundry list of suitable resins, US 048 appears primarily directed to polypropylene and styrene resins. (Col. 28, lines 38 – 40). US 048 similarly provides a laundry list of suitable applications. (Col. 20, lines 31 – 56). Although a wide range of molded product applications are specifically enumerated, biaxially oriented films are noticeably absent from the list. US 048 further provides a myriad of working examples; however, none is directed to either biaxially oriented film or polyethylene terephthalate. (Ex. 1, Col. 38, line 45 – Ex. 79, Col. 64, line 47). US 048 further notes the use of its resin within coatings. (Col. 33, lines 9 – 15 and Col. 36, lines 60 – 63). The only “film” noted within US 048 refers to a molten layer formed on the surface of burning resin. (Col. 21, lines 11 – 15).

Accordingly, US 048 does not teach or suggest flame retardant biaxially oriented films. US 048 further does not teach or suggest the recited biaxially oriented film including masterbatched flame retardant incorporated within predried and/or precrystallized masterbatch carrier polymer. In fact, US 048 teaches away from such masterbatched additives by bonding the norbornenyl group to the polymer chain during resin formation.

And US 048 most certainly does not teach or suggest biaxially oriented films including masterbatched flame retardant in an amount ranging from 0.5 to 30% by weight, in which the film has a thickness ranging from 5 to 300 microns and complies

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with the requirements for construction material classes B2 and B1 to DIN 4102, as recited in Claim 18.

US 626 is directed to polyethylene naphthalate compositions that include polymeric carbodiimides. (Col. 2, lines 34 – 48). Although broadly noting a number of applications, US 626 is primarily directed to monofilaments. (Col. 5, lines 34 – 37 and Col. 8, lines 40 - 41). US 626 appears more specifically primarily directed to monofilaments used to form paper machine fabrics. (Col. 7, lines 50 – 54). The working example indicates a direct add of the polymeric carbodiimide to the PEN resin. (Col. 8, lines 11 – 40).

US 626 does not teach or suggest biaxially oriented film, much less the recited biaxially oriented film including masterbatched flame retardant incorporated within predried and/or precrystallized masterbatch carrier polymer.

And US 626 most certainly does not teach or suggest such films including flame retardant in an amount ranging from 0.5 to 30% by weight, in which the film has a thickness ranging from 5 to 300 microns and complies with the requirements for construction material classes B2 and B1 to DIN 4102, as recited in Claim 18.

Nor does US 626 teach or suggest such film formed from polyester that consists essentially of polyethylene terephthalate, as recited in Claim 19. In fact, US 626 teaches away from such embodiments by requiring the presence of polyethylene naphthalate.

There would have been no motivation to have combined US 181, US 048 and US 626. Applicants respectfully submit that merely because the references can be combined is not enough, there must still be a suggestion. MPEP 2143.01 (section citing Mills). Applicants respectfully submit that the Office Action is indulging in impermissible hindsight by merely picking and choosing elements from the prior art while using the instant specification as the guide for that selection process.

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US 181 is directed to heat sealable films. US 048 is primarily directed to rubbers, waxes and oils. US 626 is primarily directed monofilaments used to form paper machine fabric. These are altogether different fields of endeavour.

However, even if combined (which Applicants submit should not be done), the claimed invention would not result. US 181 is directed to films incorporating EN into the heat sealable layer. US 048 is directed to rubbers, waxes or oils bonded to norbornenyl groups. US 626 is primarily directed to PEN compositions used in paper machine fabrics. None of the cited references teaches or suggests the predrying or precrystallization of masterbatched additives.

Consequently, even if combined, the recited biaxially oriented film including masterbatched flame retardant incorporated within predried and/or precrystallized masterbatch carrier polymer would not result.

And the films of Claim 18 including flame retardant in an amount ranging from 0.5 to 30% by weight, in which the film has a thickness ranging from 5 to 300 microns and complies with the requirements for construction material classes B2 and B1 to DIN 4102, would most certainly not result.

Nor would the combination result in flame retardant films formed from polyester that consists essentially of polyethylene terephthalate, as recited in Claim 19. In fact, the majority of the references teach away from such embodiments by requiring the presence of either EN or PEN.

Further, neither US 181, US 048 or US 626 addresses the significant issue solved by the instant application, i.e. the elimination of caking during flame retardant polyester production. Accordingly, they can not suggest a solution to that problem. The instant invention resides in the selection of particular elements from a wide number of possibilities to solve a specific problem.

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Accordingly, Applicants respectfully submit that Claims 1 through 4, 6 through 12 and 14 through 17 are patentable in light of US 181, US 048 and US 626, considered either alone or in combination.

Claims 5 and 13 are similarly patentable in light of the foregoing references in combination with DE 599.

As noted in Applicants Amendment of January 22, 2004, DE 599 is solely directed to cast sheet, not the biaxially oriented films of the claimed invention. DE 599 is more particularly directed to cast sheet that includes antioxidant.

Accordingly, there would have been no motivation to have combined US 181, US 048, US 626 and DE 599. As noted above, US 181 is directed to heat sealable films. US 048 is directed to rubbers, waxes and oils. US 626 is primarily directed monofilaments used to form paper machine fabric. DE 599 is directed to cast sheet. These are altogether different fields of endeavour, to say the least.

However, even if combined (which Applicants submit should not be done), the claimed invention would not result. None of the cited references teaches or suggests the predrying or precrystallization of masterbatched additives. Consequently, even if combined, the recited biaxially oriented film including masterbatched flame retardant incorporated within predried and/or precrystallized masterbatch carrier polymer would not result. Accordingly, such films further including the enumerated hydrolysis stabilizers of Claim 5 would not result. Likewise, the films of Claim 13, incorporating recycled material, would not result.

Applicants thus respectfully submit that Claims 5 and 13 are patentable in light of US 181, US 048, US 626 and DE 599, considered either alone or in combination.